

EXECUTIVE SUMMARY

The Pamlico River estuary (including the Pamlico and Pungo rivers and their associated feeder streams) recently experienced a decline in blue crab production. The causative agents and the severity of the decline are unknown. However, public opinion has laid the majority of the blame on the crab trawl fishery. This opinion coupled with the lack of fishery dependent data for the crab trawl and pot fisheries has put managers in a difficult position. In order to optimize yield for this resource up-to-date fishery-dependent data, such as size and sex composition of catches, number and weight of individuals in the catch, and effort data, were needed. The objectives of this study were to examine: 1) harvest rates and bycatch in the crab pot and trawl fisheries; 2) the physical injury and immediate mortality of blue crabs in the pot and trawl fishery; and 3) the level of delayed mortality of blue crabs in the pot and trawl fisheries.

Fifty crab trawl catches were examined from November 1990 through November 1991. The average landed catch of blue crabs was 82.3 kg per trip. The ratio of sublegal to legal crabs was 1:1.8 (weight). Flounder catches during this time averaged 111.8 kg per trip, 54.9 kg legal and 56.9 kg sublegal. The overall ratio of sublegal to legal flounder was 1:0.96 (weight). Twenty-seven species of finfish were noted in the catches, 13 of which were caught in more than one tow. Excluding flounder, finfish bycatch ranged from 0 to 44.2 kg and averaged 5.9 kg per trip. Tow times ranged from 1.8 to 4 hours and averaged 2.9 hours. The average number of tows per trip was 3 and ranged from 2 to 5.

Crab pot sampling was conducted from March 1991 through November 1991. Catches from 1,278 pots were examined. The average daily landed catch of blue crabs was 378.2 kg. The ratio of sublegal to legal crabs was 1:14.2 (weight). The average number of pots fished was 286 and ranged from 70 to 675. Soak time ranged from 1 to 6 days and averaged 1.9 days.

The incidence of physical injury to trawl and pot caught crabs was similar in that the appendages were the most frequently damaged area. The chelipeds were the most frequently damaged appendage for both gear types. However, crab pot crabs showed a greater loss than did trawl caught crabs, 52% and 33%, respectively. The only incidence of major damage occurred in crab pot crabs, and 63% of these injuries were the result of intraspecific interactions.

The only observed cases of immediate mortality in crab trawl caught crabs occurred in June. During this trip a large number of paper shell and soft crabs were killed in the trawling process.

Results of post harvest mortality studies showed that 92% of the crab pot crabs and 64% of the trawl caught crabs survived a 14 day holding period. There were no differences between the survival rates of damaged crabs and undamaged crabs, 13.47 and 12.56 for pots and 10.54 and 10.10 for trawl caught crabs, respectively.